

SECTION 01200 - TECHNICAL SPECIFICATIONS

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TECHNICAL SPECIFICATIONS

PART A - GENERAL

1. WORK COVERED BY CONTRACT PRICE

1.1.1 The location of the work to be performed under these specifications is the jetty rehabilitation and revetment construction at Plum Island, New York.

1.1.2 The work consists of furnishing all plant, labor, material and equipment, in order to perform rehabilitation of the jetties and construction of a revetment, in strict accordance with the specifications and drawings for jetty rehabilitation and revetment construction for Plum Island, New York as described herein.

1.1.3 WORKING ON PLUM ISLAND. The Contractor should be aware that Plum Island is a restricted access area and due to the research performed in the labs located on the island, there are numerous rules and regulations concerning work on the island. The rules and regulations for performing work on the island are found in Paragraph H-54 of SECTION 0800 of the specifications. The Contractor, should thoroughly read all the rules and regulations concerning work on the island, and plan their work accordingly.

2. MOBILIZATION & DEMOBILIZATION (DEC 1985).

(a) All costs connected with the mobilization and demobilization of all the Contractor's plant and equipment will be paid for at the lump sum price for this item. Sixty percent (60%) of the lump sum price will be paid to the Contractor upon completion of his mobilization at the work site. The remaining forty percent (40%) will be paid to the Contractor upon completion of demobilization.

(b) In the event the Contracting Officer and/or Representative considers that the amount in this item (60%), which represents mobilization and (40%) which represents

demobilization, does not bear a reasonable relation to the cost of the work in this contract, the Contracting Officer and/or his Representative may require the Contractor to justify this portion of the bid. Failure to justify such price to the satisfaction of the Contracting Officer and/or his Representative will result in payment of actual mobilization costs, as determined by the Contracting Officer and/or his Representative at the completion of mobilization, and actual demobilization costs, as determined by the Contracting Officer and/or his Representative at the completion of demobilization, and payment of the remainder of this item in the final payment under this contract. The determination of the Contracting Officer and/or his Representative is not subject to appeal.

3. ORDER OF WORK.

The Contractor shall either arrange to have all land based equipment transported to Plum Island by DHS ferry or by himself. All transportation should be coordinated with DHS (POC: Charles Wenderoth at 631-323-3007) . Prior to commencement of work on the revetment the Contractor shall submit a plan to provide a ramp for moving equipment and material over the power cables to DHS for approval. There are two areas where rocks are located and may be broken on Plum Island. The first order of work for the Contractor is to sort, classify and stockpile in the designated staging areas, the existing stone for use as armor, underlayer and bedding stone for the revetment construction and the jetty rehabilitation. The sorting of the existing armor stone shall be performed to determine that sufficient quantities of each stone type (see Table in Paragraph 5.3.1 of Section 01200 for estimated quantities) are available to construct the revetment and rehabilitate the existing jetties. The Contractor shall sort the stone such that the stored rocks in the staging area near the DHS docks will be depleted during the duration of the project. After completion of the sorting the contractor shall commence to break the existing stone to be used as core material (bedding and underlayer) for the revetment. After completion of sorting of the existing stone, the contractor may commence transporting sufficient quantities of material to the rock storage area near the lighthouse to allow continuous work on the revetment to be undertaken. Prior to the

commencement of work on the revetment the contractor shall construct a ramp to allow movement of equipment and material over the power cables that come ashore south of the revetment work area, and prepare a work road by clearing debris and large rocks seaward of the bluff and using the small gravel size rocks shown on the contract drawings (if deemed necessary). Debris shall be removed from the island as specified. Large rocks moved during the road preparation may be moved seaward or broken for use as bedding/underlayer material. Prior to commencing construction of the revetment the Contractor shall establish a baseline using marked stakes at 20 feet seaward of the toe of the slope of the bluff (determined through a joint agreement between the Contractor and the Contracting Officer and/or his representative) at minimum of 50 foot intervals along the beach or less, if required by large changes in slope. This baseline will serve as the starting point for excavation of the toe stone of the revetment. During the revetment construction, the Contractor may commence work on the jetties. Upon completion of sections of the revetment the Contractor shall plant beach grass as specified, of the Contractor may wait until a suitable growing season to plant all of the beach grass (see Section 02481 of the specs). Construction of the ramp and preparation of the roadway will be considered a part of Mobilization.

4. CONSTRUCTION FACILITIES.

4.1 General. Furnish and maintain loading, unloading, hauling, drainage, and such stone handling equipment and facilities as necessary for the conduct of operations. Lands available for use as a staging area for sorting and breaking stone and a staging area for the revetment construction, along with work area limits for the revetment and jetties, are shown on the drawings. Adequate signage shall be provided to inform the public that the staging areas are a work area and that hard hats are required, and all equipment shall be stored within these area after the daily completion of work. The contractor during the project duration shall make efforts to restrict the public from entering the work/staging areas. Location of any additional areas by the Contractor for his use shall be coordinated with the DHS and approved before use and a copy of each agreement with a landowner shall be furnished the Contracting Officer. Upon completion of the project the

Contractor shall either arrange to have all land based equipment transported from Plum Island by DHS ferry or by himself after coordination with DHS. The Contractor will be responsible for restoring any work/staging areas and roadways (if damaged during stone transport) to at a minimum it's pre-construction condition.

4.2 Loading Facility and Temporary Dock(s) and Roadways. The contractor shall coordinate with DHS the location of a temporary mooring and loading area for his barge during rehabilitation of the jetties. The work barge during all operations shall not restrict use of the channel and landing areas during loading of the stone and rehabilitation of the jetties. The contractor shall be responsible for performing any hydrographic surveys of the area to determine barge accessibility, although a condition survey of the area adjacent to the jetty/revetment is shown in the plans. Any dredging or improvements to the area to perform the work or for loading operations shall be included in the cost for mobilization & demobilization. The Contractor shall be responsible for obtaining any required permits, prior to performing any improvements to this area and if required the beach access roadway and work roadway. The contractor will be responsible for protection of all utilities in the loading, hauling and construction areas, and for coordinating this protection with DHS. The Contractor will comply with all US Coast Guard regulations and install and maintain any navigation aids required, and submit a plan for loading facilities and temporary dock(s) for approval 15 days prior to the start of construction of any facility to DHS. At the completion of operations, all facilities and roadways installed by the contractor in the loading area and work areas shall be removed unless otherwise directed by the Contracting Officer. The material from these facilities shall not be disposed of in the waters of the channel or ocean. The Contractor shall be responsible for any damages resulting from the construction and/or use of the loading facilities. At the completion of operations, the Contractor shall obtain a release from the property owners where the loading facility and temporary dock(s) are located, and submit the release to the Contracting Officer for review and approval, or perform a joint inspection with DHS and the COR prior to leaving the site. At the completion of operations, the area where the

beach access roadway is constructed shall be restored to it's before project state.

4.3 During performance of the jetty repairs and the revetment construction, the Contractor shall plan on having his personnel transported to Plum Island on a daily basis, via the DHS ferry. During rehabilitation of the jetties, the Contractor may elect to leave any marine equipment in the Plum Harbor area shown on the contract drawings, while still transporting personnel to and from the island via the DHS ferry. If a storm or rough weather approaches during the time period when the Contractor is harboring marine equipment at Plum Island, and if the storm or rough weather is to be believed to be of sufficient strength, as judged by Plum Island government personnel, the Contractor will be required to move all marine equipment out of the Plum Island Harbor area to a safe harbor on the mainland. The Contractor shall provide the location of the safe harbor in the required Safety Plan and Accident Hazard Analysis submission. In addition, during storm periods, the Contractor shall relocate the storage fuel tank and all equipment shall be relocated to a safe area (high elevation).

TECHNICAL SPECIFICATIONS

PART B - STONE

5. MATERIALS

5.1 Stone Weights.

5.1.1 General. The Contractor shall be responsible for weighing all stones used during the construction of the revetment and jetty rehabilitation.

5.1.2 Stone Weights. The Contractor shall have a scale(s) on site to accurately weigh all stones used during the revetment construction and the jetty rehabilitation. A properly accredited official shall certify the scales for accuracy. A certified Weigh Master shall operate the scales. Additional methods for determining the weight of the stone may be

submitted to the Contracting Officer for his approval. Scales shall be recertified every six months, when they have been moved, or if any disturbance may have altered the accuracy. Scales shall have printers that indicate Gross, Tare and Net weights. The Certified Weigh Master shall sign this ticket. Tickets shall be tallied and provided daily to the Contracting Officer's Representative.

5.2 Stone.

The stone to be used during the project is located near the bulkhead on Plum Island and at north of the buildings on Plum Island as shown on the contract drawings. The majority of the stone was transported to Plum Island after removal from the rehabilitated breakwater at Sag Harbor, New York. The stone varies in size from 0.5-6 tons. The stone near the buildings were removed during various construction activities on the island, and vary in size and weight. Larger stones in this area may be used as toe material for the revetment construction.

5.3 Classification. The following classification table gives the required weights of armor stones in tons of 2,000 pounds and underlayer and graded stone in pounds based on a unit weight of not less than 175 lbs. per cubic foot.

5.3.1 Stone Classification Table.

Armor Stone		Armor Stone Weight (tons)			
Estimated					
<u>Class</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Required</u>	<u>Gradation</u>	<u>Quantity</u>
A	4.0	6.0	75% >	5 tons	Total
for					
B	3.0	4.0	75% >	3.5 tons	A,B,and C
C	2.0	3.0	75% >	2.5 tons	= 5,540
D	3.0	6.0	75% >	4 Tons	
7,260					

It is noted than any existing armor stone in excess of the 6 ton maximum stone weight may be used for Class C and D requirements.

Core Stone

Underlayer Stone Weight (pounds)

Estimated

<u>Class</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Required</u>	<u>Gradation</u>	<u>Quantity</u>
E	420	780	75% >	600 pounds	Total for
F	700	1300	75% >	1000 pounds	E,F 4,400

Bedding Stone

Bedding (Core) Stone Weight (pounds) Est b

imated

<u>Class</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Required</u>	<u>Gradation</u>	<u>Quantity</u>
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G	10	200	75% >	100 pounds	1,430
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Estimated Quantities are in tons.

5.3.2 Bedding Material. Bedding stone shall be free from silt, clay, organic material, debris or other unsuitable material. The required weight of the bedding stone is based on a unit weight of not less than 175 pounds per cubic foot. For all work the range of bedding stone weight is 10 pounds to 200 pounds with 75 percent greater than 100 pounds.

5.3.3 Breaking Stone. After sorting of the stockpile to ensure an adequate quantities of armor stone for the jetty rehabilitation and the revetment construction, all remaining stone shall be broken into core (underlayer and bedding) material size stone.

5.3.4 Handling Breakage. If any armor stone is broken in handling after being weighed for pay quantity determination, the broken pieces may be reclassified and placed in a lower weight class stone if it meets the requirements for the class stone.

6. STONE DISTRIBUTION.

All material to be deposited in the jetty/revetment shall be placed by means such as a crane or excavator to the required cross-section and as needed for the type of stone being

placed. Material to be deposited below MLW may be placed by any means that will obtain the required cross-section and purpose of the stone. Rubber-tired equipment may be used for placement of the graded stone and bedding material in the structure where it is appropriate to do so.

6.1 Work to be Performed.

6.1.1 Revetment. The starting point of the toe of the revetment will be based upon the 20-foot from the toe of the slope of the bluff baseline established prior to commencement of work. From the established baseline the Contractor shall excavate to a sufficient depth to allow placement of the toe stone, one layer of underlayer and two feet minimum of bedding stone above the geotextile material. The revetment work shall consist of excavating the existing bluff to grade, if required, or placement of any material excavated for the toe stone as backfill to provide the required elevation to allow placement of the geotextile material, and construction of the revetment as described and in accordance with the stone distribution shown on the plans, having one layer of Class "A", "B" and "C" armor stone (reducing the size of the armor stone in correlation with the height of the structure), one layer of Class "E" and "F" underlayer and Class "G" bedding stone. The toe of the structure shall consist of a 2-foot layer of bedding stone, one layer of Class "E" underlayer, and one layer of Class "A" armor stone (using the maximum size "A") allowed. During excavation for the toe of the revetment if a large stone is buried in the beach (not easily removed), after coordinating with the COR, the Contractor may be allowed to leave the large stone in place, and omit the placement of bedding, underlayer and geotextile material under it. Any material excavated for placement of the toe stone after construction of the revetment shall be placed at the top of the revetment as backfill.

6.1.2 Jetty Reconstruction. Both the East and West jetties at the entrance to the ferry docking facilities shall be rehabilitated as shown on the drawings. The rehabilitation shall consist of overlaying Class "D" Armor Stone on top of the existing structure, to obtain a smooth and interlocked structural face having a crest elevation of +7 MLW, as stated in Section 9 - Tolerances.

7. STONE PLACEMENT.

7.1 Long Stone. All existing acceptable stones that have a long axis which exceeds twice either of its dimensions shall be placed with the long axis normal to the slope or crest at the location where the stone is placed. The surface stones of the outside layer shall consist of stone weighing not less than the average weight of its class. All stones in the outer layer shall be placed and arranged to secure maximum surface contact between adjacent stones in order to minimize void size, reduce movement of the stone and protect core stone. Continuous joints will not be permitted between adjoining stones.

7.2 Use of Existing Stones. The Contractor shall manipulate the existing stone so as to form a solid, continuous jetty/revetment structure.

7.3 Location and Quantity of Stone to be Placed. The location and quantities of stone to be placed are based on field surveys of July 2001 and January 2002, and subsequent field inspections. The Contractor should make his own determination based on conditions prevailing at the mandatory site visit. The Contractor's attention is directed to the fact that actual quantities required will depend on conditions prevailing at the time of construction.

7.4 Limits of Work. Before and during the course of work, the Contracting Officer's Representative may revise the limits of work classification areas based on the actual conditions at the time of construction.

8. PLACING EQUIPMENT.

All equipment for lifting shall be load tested. The equipment shall be capable of placing jetty/revetment stone in such a manner as to produce a well-keyed mass without damage to the stone. Stone placing equipment shall have adequate safety capacity to construct the jetty/revetment to the lines,

grades, and slopes indicated on the drawings. If equipment is used on the jetty/revetment crests, mats are required. Temporary filling of voids with sand or stone will not be permitted. All placing equipment shall provide means of turning all stones placed above MLW at least 90 degrees in the horizontal plane and for vertical rotation, to the extent necessary for final positioning. A Government representative shall be permitted to ride the cab of the stone placing equipment in order to view the operation for positioning of individual stones. No stone shall be retrieved, placed, dropped or dumped from the bluff.

8.1 Stone Setter. The Contractor will have stone placement accomplished by a qualified stone setter having demonstrated experience, to the satisfaction of the Contracting Officer, in the construction of rubble-mound rock coastal structures.

9. TOLERANCES.

Jetty and revetment armor stone shall be placed to the lines and grades shown on the drawings. A tolerance of plus or minus 12 inches measured perpendicularly from the crests, slope lines and grades shown on the drawings for the jetty/revetment will be allowed for armor stone, except that exceeding a 9 inch tolerance will not be allowed in the exposed surface of adjacent stones. Upon completion of any portion of the work, the Contractor shall perform a survey on 20-foot centers to determine that the plus tolerance has not been exceeded. If the minus tolerance has been exceeded, the Contractor at his expense shall remove and replace the stone to be within the tolerance except stated in Section 00800 Paragraph H-29 . Resetting of the stone shall be to the same requirements for keying adjacent stones as the new construction. Results of the survey shall be provided in both electronic (AutoCad formatted files) and mylars and bond paper.

10. ACCEPTANCE SECTIONS.

10.1 Acceptance Sections. Completed work on the jetty and revetment will be accepted in sections as listed in the following table:

<u>Acceptance</u>	<u>Section</u>	<u>Description</u>	<u>Stations</u>
1		Revetment	Entire
		Revetment	
2		West Jetty	Entire Jetty
3		East Jetty	Entire Jetty

10.2 Requirement for Land Surveyor. The Contractor shall employ a land surveyor licensed by the State of New York, experienced in both land and hydrographic surveying to take all required surveys. The Contractor shall also make any surveys for partial payment purposes upon request of the Contracting Officer.

10.3 Acceptance of Completed Sections. As soon as practicable after the completion of each of the above sections, the Contractor accompanied by the Contracting Officer, or his authorized representative, will perform a survey of the completed section. When a section is found to be in a satisfactory condition it will be accepted finally. Any section damaged by the Contractor after final acceptance shall be repaired by him at his expense.

10.4 Reopening of Final Acceptance of Work. Final acceptance of the whole or part of the work and the deductions or corrections made thereon will not be reopened after having once been made, except on evidence of collusion, fraud or obvious error and acceptance of a completed section shall not change the time of payment of the retained percentage of the whole or part of the work.

11. QUALITY CONTROL.

The Contractor shall establish and maintain quality control on placement operations to assure compliance with contract requirements and maintain records of his quality control for all construction. A copy of the following records and Contractor tests, as well as the records of corrective actions taken, shall be furnished to the Government as directed by the Contracting Officer:

- a. Determination of proper gradation of stone by weight

- b. Control of stone placement by vertical and horizontal alignment to lines and grades indicated in the contract
- c. Records of all stones on-hand and placed to date
- d. Records of all loads that have been rejected
- e. Records of all quantity surveys performed
- f. Daily inspection reports of wire ropes

12. MEASUREMENT AND PAYMENT.

12.1 Measurement. The Contractor will take all before and after surveys using a licensed professional surveyor in the presence of the Contracting Officer's representative.

12.1.1 Measurement for new Class A, B, C, and D armor stone, Class E and F underlayer stone and Class G bedding stone will be the weight of the stone in tons of 2,000 pounds as determined by scale weights. Measurement will not be made for unsuitable stone. The estimated amounts of armor stone, underlayer stone, and bedding stone shown in the RFP schedule were based upon stone weighing 175 pounds per cubic foot. Any excavation for placement of the toe or revetment will be considered to be a part of the revetment construction and shall be included in the unit price for the placement of stone.

12.1.2 Measurement for existing debris, which is removed during construction of the revetment, shall be stockpiled and taken to an acceptable disposal site off of Plum Island will be made jointly with the Contracting Officer's representative.

In addition, the debris shall include the removal of the existing concrete pad for the search light and the old piles, remnants of the cable crossing sign, the concrete base for the old bell on the jetty, the piles supporting the navigation lights at the ends of the jetty, and debris near the Sag Harbor rock pile. The volume of debris will be determined by the number of full dumpsters taken off the Plum Island on a Cubic Yardage basis.

12.1.3 Measurement for the planting of beach grass on the bluff slope has been estimated from the contract drawing in

square feet. Measurement for providing and placing geotextile fabric under the revetment stone will be measured for payment in place to the nearest square feet of protected area.

12.2 Payment. The quantity determined as provided above will be paid at the contract unit price per ton for:

Item No. 0002 - Transport, Classify, break and stockpile on site existing stone form staging/rock storage areas.

Item No. 0003 - Place sorted, classified and stockpiled stone for Revetment.

Item No. 0004 - Place sorted, classified and stockpiled stone for Revetment.

12.2.1 Mobilization and Demobilization - See Paragraph 2. of this specification section for payment requirements for mobilization and demobilization. Mobilization will include the construction of the ramp over the cable and the preparation of the access roadway.

12.2.2 Payment for the providing and planting of grass will be on a square feet basis.

12.2.3 Payment for the removal and disposal of the debris (including the concrete pad and remnants of the cable crossing sign will be on a cubic yard basis).

12.2.4 Prices and payments for the above listed items will constitute full compensation for furnishing all labor, equipment, and materials; and performing all work required to complete the satisfactory placement of stones in the jetty and revetment in accordance with the drawings and specifications.